

CLAIMS

What is claimed is:

1           1. A laser scanning apparatus comprising:  
2           a light source configured to emit a light beam in a single direction;  
3           a scanning device optically coupled with the light source and configured  
4 to scan the light beam along a photoconductor in a plurality of scan lines; and  
5           a start-of-scan detector assembly configured to sample the light beam  
6 and initiate a start-of-scan operation of one of the scan lines of information to be  
7 written on the photoconductor, and wherein the sampled light beam is used to  
8 control a drive level of the light source.

1           2. The apparatus of claim 1, further comprising:  
2           a control system configured to receive a signal from the detector  
3 assembly and to control the drive level of the light source based on the signal.

1           3. The apparatus of claim 2, wherein the control system comprises  
2 processing circuitry configured to compare an indication of the sampled light  
3 beam from the signal with a predetermined value.

1           4. The apparatus of claim 2, wherein the control system is configured to  
2 maintain the drive level of the light source at a predetermined drive level during  
3 scanning of the one scan line.

1           5. The apparatus of claim 1, wherein the light source comprises a  
2 vertical cavity surface emitting laser diode (VCSEL).

1           6. The apparatus of claim 1, wherein the light beam is sampled only once  
2 per scan line of information written on the photoconductor, and the light beam is  
3 sampled prior to writing the scan line of information on the photoconductor.

1           7. The apparatus of claim 1, wherein the scanning device comprises a  
2 rotating polygon mirror.

1           8. The apparatus of claim 1, wherein the start-of-scan detector assembly  
2 is disposed outside of a scan area of the photoconductor.

1           9. A laser scanning apparatus comprising:  
2           a rotating scanning device configured to scan a light beam from a light  
3 source;  
4           a photodetector optically coupled with the rotating scanning device and  
5 configured to sample the light beam from the rotating scanning device; and  
6           a control system configured to receive an indication of the sampled light  
7 beam from the photodetector and to control a drive level of the light source  
8 responsive to the indication of the sampled light.

1           10. The apparatus of claim 9, wherein the light source is configured to  
2 emit light in a single direction.

1           11. The apparatus of claim 9, wherein the light source comprises a  
2 vertical cavity surface emission laser diode (VCSEL).

1           12. The apparatus of claim 9, wherein the control system comprises  
2 processing circuitry configured to compare an indication of the sampled light  
3 beam with a predetermined drive level value, and to control the drive level of the  
4 light source based on the comparison.

1           13. The apparatus of claim 9, wherein the control system is configured  
2 to maintain the light source at a constant drive level during scanning of a single  
3 line of information on the photoconductor.

1           14. A laser scanning apparatus comprising:  
2           a scanning device configured to scan a light beam from a light source;  
3           a photodetector optically coupled with the scanning device and  
4 configured to sample the light beam only once per line of information scanned  
5 onto a photoconductor; and

6           a control system configured to receive an indication of the sampled light  
7 beam from the photodetector and to maintain a drive level of the light source at  
8 a constant drive level during scanning of the line of information onto the  
9 photoconductor.

1           15. The apparatus of claim 14, wherein the light source is configured to  
2 emit a light beam in a single direction.

1           16. The apparatus of claim 14, wherein photodetector is utilized to  
2 initiate a start of scan operation of the line of information.

1           17. The apparatus of claim 14, wherein the sampled light beam is  
2 obtained before scanning a line of information onto the photoconductor.

1           18. A laser scanning apparatus comprising:  
2 means for scanning a light beam from a light source onto a  
3 photoconductor;  
4 means for sampling the light beam which causes information to be  
5 scanned onto the photoconductor; and  
6 means for receiving an indication of the sampled light beam from the  
7 means for sampling and for maintaining the light source at a constant drive level  
8 during scanning of the line of information onto the photoconductor.

1           19. The apparatus of claim 18, wherein the light source is a vertical  
2 cavity surface emitting laser diode (VCSEL).

1           20. The apparatus of claim 18, wherein the light beam is sampled before  
2 writing a scan line of information onto the photoconductor.

1           21. The apparatus of claim 18, wherein the means for sampling is  
2 disposed outside of a scan area of the photoconductor.

1        22. A laser scanning method comprising:  
2        emitting a light beam in a single direction using a light source;  
3        providing a rotating scanning device and a photoconductor;  
4        scanning the light beam along the photoconductor using the rotating  
5 scanning device;  
6        sampling the light beam from the rotating scanning device using a  
7 sampling assembly; and  
8        controlling a drive level of the light source responsive to the sampled light  
9 beam.

1        23. The method of claim 22, further comprising:  
2        initiating writing of a scan line of information onto the photoconductor  
3 using the sampling assembly.

1        24. The method of claim 22, wherein the controlling comprises:  
2        receiving the sampled light beam in a control system;  
3        comparing an indication of the sampled light beam with a predetermined  
4 drive level value; and  
5        controlling the drive level of the light source responsive to the  
6 comparison.

1        25. The method of claim 22, further comprising:  
2        maintaining an output power of the light source at a constant level during  
3 writing of a single scan line of information onto the photoconductor.

1        26. The method of claim 22, wherein the light source comprises a  
2 vertical cavity surface emitting laser diode (VCSEL).

1        27. The method of claim 22, wherein the sampling is performed only  
2 once per scan line of information written on the photoconductor and prior to  
3 writing the scan line of information on the photoconductor.

1           28. The method of claim 22, wherein the sampling assembly is located  
2 outside of a scan area of the photoconductor.

1           29. A hard imaging device comprising:  
2           a photoconductor;  
3           a laser scanning apparatus configured to write scan lines of information  
4 onto the photoconductor, the laser scanning apparatus comprising:  
5                 a light source configured to emit a light beam in a single direction;  
6                 a scanning device optically coupled with the light source and  
7 configured to scan the light beam along the photoconductor to form the scan  
8 lines; and  
9                 a sampling assembly configured to sample the light beam and to  
10 initiate start-of-scan operations to write the scan lines onto the photoconductor,  
11 and wherein the sampled light beam is used to control a drive level of the light  
12 source; and  
13           an image engine configured to form hard images from the written scan  
14 lines using media.

1           30. The device of claim 29, wherein the laser scanning apparatus further  
2 comprises:  
3           a control system configured to receive a signal from the sampling  
4 assembly and to control the drive level of the light source based on the received  
5 signal.

1           31. An article of manufacture comprising:  
2           processor-usable media comprising programming configured to cause  
3 processing circuitry to:  
4                 output a control signal to control a light source configured to  
5 generate a light beam used to scan a plurality of scan lines of information onto a  
6 photoconductor;  
7                 access an output of a start-of-scan detector assembly generated  
8 responsive to detection of the light beam thereby, wherein the output indicates

9 appropriate timing for initiation of writing of the information for the respective  
10 scan lines;  
11 process the output of the start-of-scan detector assembly; and  
12 adjust the control signal responsive to the processing of the output  
13 to adjust an intensity of the light beam generated by the light source.

1 32. The article of manufacture of claim 31, wherein the programming is  
2 further configured to cause the processing circuitry to adjust the control signal  
3 to provide the light beam having a substantially constant intensity during the  
4 scanning of the scan lines.